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10/777,234

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EXAMINER

BANKHEAD, GENE LOUIS

ART UNIT

PAPER NUMBER

3744

DATE MAILED: 05/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/777,234 | Applicant(s) HERMERDING, JAMES G. | |
| | Examiner Gene L. Bankhead | Art Unit 3744 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on February 11, 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 20-34 is/are rejected.
- 7) ☒ Claim(s) 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on February 11, 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claims 18-19 are objected to because of the following informalities: In claim 18 there is insufficient antecedent basis for " a set of components", line 3. However, in light of the specification and the language of the claim, "a set of components" has been presumed to be -- a second set of components--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 27-29 recite the limitation " the individual component ". Independent claim 27 contains no earlier recitation of the "the individual component" prior to being mentioned as a limitation in the claim. Therefore there is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-13, 15-23,25,and 27-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Hokanson (US 6167947). Hokanson teaches a computer wherein the pressure within the computing system 100 compartment is directly related to the heat carrying capacity of the gas used to remove excess heat generated by the computers electronic components 108; the greater the pressure the greater the gas heat carrying capacity (column 4 lines 30-43 and column 8 lines 60-65). To decrease pressure and prevent over pressurization of the computer compartment, a relief valve 130, connected to the pressure system controller 126 (column 5 lines 40-47), opens whenever the pressure in the computer compartment reaches a predetermined threshold (column 5 lines 40-55). When the relief valve 130 is opened the cooling capacity of the system decreases. The system's cooling requirement is dependent upon the pressure of the gas in the system.

Regarding claim 2, Hokanson further discloses several valves as being used to control the gas levels in the system and its pressure. A gas control valve 124 is used to regulate the amount of gas entering the system and is connected to the pressure system controller 126 (column 5 lines 40-47). A purge valve 128 and the relief valve 130 vent gas and air from the compartment to the atmosphere (column 5 lines 45-55). The purge valve, vent valve, and control gas valve are used to adjust the airflow resistance to meet the systems cooling requirements (column 5 lines 40-56). Other valves used to adjust the cooling requirement include valves 148 and 144 (column 6 lines 26-30 and column 7 lines 30-36).

In regard to claim 3, Hokanson further discloses that airflow is increased to a first set of components and decreased to a second set of components when the cooling requirement indicates a need for increased cooling. At the onset of heating in the electronic components, airflow is increased to the components as gas is drawn through vents 152 and passes over the electronic components. To avoid over pressurization of the gas in the lower portion 104 of the computer compartment gas exits through vents 144 of the heat exchanger 140, decreasing airflow (column 7 lines 23-46 and column 6 lines 34-43).

In regards to claims 4 and 5, a control station 154 connected to the system pressure controller 126. Based on state data or power management data provided by the computing system (column 6 lines 64-68 and column 7 lines 1-20), the valves open or shut according to the feedback of the pressure system controller and pressure transducer. If the pressure readings are too low the gas control valve 124 is opened to restore an optimum level, if the pressure exceeds the system design threshold the relief valve 130 is opened.

Regarding claim 6, Hokanson teaches the cooling method of claim 1 is directed to large sophisticated computers (column 9 lines 22-31), such as desktop computers.

With regard to claims 7 and 8, a pressure transducer 127, is used to monitor the pressure within the system and to signal the pressure system controller 126 when the gas in the system has reached a predetermined limit. The pressure transducer and pressure system controller serve as the control module measuring pressure levels within the system. The relief valve connected to the system pressure controller (see

Figure 4) closes when the system exceeds pressure requirements (column 7 lines 5-15). The gas control valve opens when the system must be restored to minimal pressure requirements (column 7 lines 10-20).

Regarding claim 9, Hokanson further discloses that airflow is increased to a first set of components and decreased to a second set of components when the cooling requirement indicates a need for increased cooling. At the onset of heating in the electronic components airflow is increased to the components as gas is drawn through vents 152 and passes over the electronic components. To avoid over pressurization of the gas in the lower portion 104 of the computer compartment gas exits through vents 144 of the heat exchanger 140, decreasing airflow (column 7 lines 23-46 and column 6 lines 34-43).

Regarding claim 10, Hokanson discloses a fan chassis 118 having surfaces defining a plurality of vent apertures 152 corresponding to the purge, vent and gas control valves (column 6 lines 44-47 and Figure 4).

With regard to claims 11 and 12, a control station 154 is connected to the system pressure controller 126, and pressure transducer 127. Based on state data or power management data provided by the controller (column 6 lines 64-68 and column 7 lines 1-20) the aforementioned valves open or shut according to the feedback of the pressure system controller. If the pressure readings are too low the gas control valve is opened to restore an optimum level, if the pressure exceeds the system design threshold the relief valve is opened.

Regarding claim 13, it is inherent that the gas control valve has a movable airflow barrier, as it able to open and shut. A solenoid valve 148 is operatively coupled to the gas control valve, pressure transducer, and the pressure system controller (column 6 lines 27-33 and Figure 4).

Regarding claims 15 and 25, Hokanson discloses a housing 102 having surfaces defining a vent aperture 130 (defined generally near relief valve 130), and a cooling system having a gas control valve 124, the gas control valve being disposed just beneath the vent aperture, see Figure 4. Hokanson further teaches the manual operation of the gas control valve (column 5 lines 40-45).

Regarding claims 16, the cooling system includes a pressure transducer 127 used to monitor the pressure within the system and signal the pressure system controller 126 when the gas in the system has reached a predetermined limit. The relief valve connected to the system pressure controller (see Figure 4) closes when the system exceeds pressure requirements (column 7 lines 5-15). The gas control valve opens when the systems must be restored to minimal pressure requirements. The pressure transducer and pressure system controller serve as the control module for the cooling system. As the control module adjust the pressure within the system via the valves the ability of the system to cool the electronic components fluctuates.

In regard to claims 17 and 20, Hokanson discloses a computer system with a surface housing defining a plurality of vent apertures. Note references 128, 130, and 116 located on the surface of the housing in Figure 4. The cooling system has a corresponding plurality of vent valves, the relief, and gate control and purge valves. The

control module (system pressure transducer and pressure system controller) adjusts the airflow resistance of one or more of the vent valves to meet the system's cooling requirement based on the pressure in the system, (column 7 lines 1-20). Hokanson further discloses a fan chassis that defines a plurality of vent apertures (128, 130, and 116).

In regard to claims 21 and 22, see the rejection of claims 11 and 12 since these claims site similar subject matter.

Regarding claim 23, see the rejection of claim 13 since the claims cite similar subject matter.

Regarding claims 30-32, a machine-readable medium 154 to store a set of instructions to be executed by a processor is connected to the system pressure controller (column 7 lines 2-5). The cooling system pressure transducer and pressure system controller control the gas control valve based on the systems pressure level, (column 7 lines 1-20). The relief valve connected to the system pressure controller (see Figure 4) closes when the system exceeds pressure requirements (column 7 lines 5-15). The gas control valve opens when the systems needs to be restored to minimal pressure requirements, (column 7 lines 10-20). Hokanson further discloses that airflow is increased to a first set of components and decreased to a second set of components when the cooling requirement indicates a need for increased cooling. At the onset of heating in the electronic components airflow is increased to the components as gas is drawn through vents 152 and passes over the electronic components. To avoid over pressurization of the gas in the lower portion 104 of the computer compartment gas

exits through vents 144 of the heat exchanger 140, decreasing airflow (column 7 lines 23-46 and column 6 lines 34-43).

With regard to claims 33 and 34 the system control station 154 is connected to the system pressure controller 126. Based on the state data or power management data of the computing system (column 6 lines 64-68 and column 7 lines 1-20) the valves open or shut according to the feedback of the pressure system controller. If the pressure readings are too low the gas control valve is opened to restore an optimum level, if the pressure exceeds the system design threshold the relief valve is opened to release pressure.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14, 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hokanson. In regards to claims 14 and 24 Hokanson discloses all limitations of claims 7 and 16 and further discloses a power feed 129b used to power the pressure system controller. Hokanson does not expressly disclose a motor as the power feed.

At the time the invention was made it would have been an obvious matter of design choice to a person of ordinary skill in the art to couple a motor, as the power feed, with the airflow barrier and control module. Applicant has not disclosed that a

motor provides an advantage, has a particular purpose, or is a solution to a problem. One of ordinary skill in the art would expect a motor coupled to control module and airflow barrier to function in the same manner as a small engine or tiny generator.

Regarding claim 26 Hokanson teaches a desktop computer or notebook computer (column 9 lines 21-25). Though Hokanson does not disclose expressly the computing system as being that of a notebook or desktop computer one of ordinary skill in the art would know that his reference to "smaller, mini computers" incorporates the notebook and desktop computer.

Allowable Subject Matter

Claim 19 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gene L. Bankhead whose telephone number is (571)-272-8963. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571)-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3744

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


CHERYL TYLER
SUPERVISORY PATENT EXAMINER

GB
Examiner
Art Unit 3744